

CLAIMS

What is claimed is:

- 1 1. A method for managing a communications arrangement comprising a plurality of
2 participants, the method comprising the computer-implemented steps of:
3 assigning, to a first participant from the plurality of participants, one or more
4 functions to be performed by the first participant;
5 designating a second participant from the plurality of participants to perform the
6 one or more functions if any of one or more handoff criteria are satisfied;
7 in response to any of the one or more handoff criteria being satisfied, assigning
8 the one or more functions to the second participant; and
9 selecting, based upon performance of a plurality of communications channels and
10 at least one performance criterion, a first communications channel from
11 the plurality of communications channels.

- 1 2. The method of Claim 1, further comprising the computer-implemented steps of:
2 generating channel identification data that identifies the first communications
3 channel; and
4 providing the channel identification data to one or more participants from the
5 plurality of participants.

- 1 3. The method of Claim 2, further comprising the computer-implemented steps of:
2 receiving at least a first communication from the one or more participants over a
3 second communications channel from the plurality of communications
4 channels, wherein the second communications channel is determined
5 based on the channel identification data.

- 1 4. A method for managing, based on performance, a communications arrangement
- 2 comprising a plurality of participants, the method comprising the
- 3 computer-implemented steps of:
- 4 selecting, based upon performance of a plurality of communications channels, a
- 5 first communications channel from the plurality of communications
- 6 channels;
- 7 generating channel identification data that identifies the first communications
- 8 channel;
- 9 providing the channel identification data to one or more participants from the
- 10 plurality of participants;
- 11 receiving at least a first communication from the one or more participants over a
- 12 second communications channel from the plurality of communications
- 13 channels, wherein the second communications channel is determined
- 14 based on the channel identification data;
- 15 assigning, to a first participant from the plurality of participants, one or more
- 16 functions to be performed by the first participant;
- 17 prior to a failure of the first participant, designating a second participant from the
- 18 plurality of participants to perform the one or more functions if any of one
- 19 or more handoff criteria are satisfied.

1 5. A method for assigning functions between participants and selecting
2 communications channels in a communications arrangement comprising a
3 plurality of participants, the method comprising the computer-implemented steps
4 of:
5 assigning, to a first participant from the plurality of participants, one or more
6 functions to be performed by the first participant;

7 prior to a failure of the first participant, designating a second participant from the
8 plurality of participants to perform the one or more functions if any of one
9 or more criteria are satisfied;
10 in response to any of the one or more criteria being satisfied, assigning the one or
11 more functions to the second participant;
12 selecting, based upon performance of a plurality of communications channels and
13 at least one specified criterion, a first communications channel from the
14 plurality of communications channels;
15 generating channel identification data that identifies the first communications
16 channel;
17 providing the channel identification data to one or more participants from the
18 plurality of participants; and
19 receiving at least a first communication from the one or more participants over a
20 second communications channel from the plurality of communications
21 channels, wherein the second communications channel is determined
22 based on the channel identification data.

- 1 6. The method as recited in Claim 5, wherein communications between the plurality
2 of participants are made on different frequencies over time.
1 7. The method as recited in Claim 5, wherein the communications arrangement
2 includes a wireless communications arrangement and the plurality of participants
3 includes a plurality of wireless devices.

- 1 8. The method of Claim 5, wherein the channel identification data is first channel
2 identification data, and wherein the method further comprises the
3 computer-implemented steps of:
4 selecting, based upon the performance of the plurality of communications
5 channels and the at least one specified criterion, a third communications
6 channel from the plurality of communications channels;
7 generating second channel identification data that identifies the third
8 communications channel;
9 providing the second channel identification data to one or more additional
10 participants from the plurality of participants; and
11 receiving at least a second communication from the one or more additional
12 participants over a fourth communications channel from the plurality of
13 communications channels, wherein the fourth communications channel is
14 determined based on the second channel identification data that identifies
15 the third communications channel.
- 1 9. The method of Claim 5, wherein the step of providing the channel identification
2 data to the one or more participants comprises the computer-implemented step of:
3 providing the channel identification data to the one or more participants over a
4 third communications channel of the plurality of communications
5 channels, wherein the third communications channel is not the first
6 communications channel.
- 1 10. The method of Claim 9, wherein at least the first communication from the one or
2 more participants includes data that indicates the performance of the third
3 communications channel.

- 1 11. The method of Claim 5, wherein the step of selecting the first communications
2 channel from the plurality of communications channels comprises the
3 computer-implemented steps of:
4 classifying one or more communications channels of the plurality of
5 communications channels based upon whether the performance of the one
6 or more communications channels satisfies at least one performance
7 criterion; and
8 selecting the first communications channel from the one or more communications
9 channels that are classified as satisfying the at least one performance
10 criterion.
- 1 12. The method of Claim 11, further comprising the computer-implemented steps of:
2 determining a number of communications channels of the plurality of
3 communications channels that satisfy the at least one performance
4 criterion; and
5 if the number of communications channels that satisfy the at least one
6 performance criterion is less than a specified number, reclassifying one or
7 more communications channels of the plurality of communications
8 channels.
- 1 13. The method of Claim 5, further comprising the computer-implemented step of:
2 determining the performance of the plurality of communications channels.
- 1 14. The method of Claim 13, wherein the step of determining the performance of the
2 plurality of communications channels comprises the computer-implemented steps
3 of:
4 sending a request for performance data to at least one participant from the
5 plurality of participants; and

6 in response to the request, receiving performance data from the at least one
7 participant.

1 15. The method of Claim 13, wherein the step of determining the performance of the
2 plurality of communications channels comprises the computer-implemented step
3 of:

4 creating and maintaining performance data that indicates the performance of one
5 or more communications channels of the plurality of communications
6 channels for communications with one or more participants from the
7 plurality of participants.

1 16. The method as recited in Claim 5, wherein the one or more criteria include the
2 failure of the first participant.

1 17. The method as recited in Claim 5, wherein:
2 the first participant is a master participant,
3 the second participant is a slave participant prior to being assigned to perform the
4 one or more functions,
5 the second participant is an associate master participant after being designated to
6 perform the one or more functions if any of the one or more criteria are
7 satisfied, and
8 the one or more participants include one or more slave participants.

1 18. The method of Claim 17, wherein the master participant performs the steps of
2 selecting, generating, providing, and receiving.

1 19. The method of Claim 5, wherein the one or more participants includes the second
2 participant.

- 1 20. The method as recited in Claim 5, wherein the second participant is designated by
2 the first participant.
 - 1 21. The method as recited in Claim 5, wherein the second participant is designated by
2 one or more participants from the plurality of participants.
 - 1 22. A method for managing a communications system comprising a plurality of
2 participants, comprising the computer-implemented steps of:
3 determining the performance of a first communications channel between a first
4 participant from the plurality of participants and one or more other
5 participants from the plurality of participants; and
6 selecting, based upon the performance of the first communications channel
7 between the first participant and the one or more other participants, a
8 second participant from the one or more other participants;
9 assigning, to a third participant from the plurality of participants, one or more
10 functions to be performed by the third participant; and
11 designating a fourth participant from the plurality of participants to perform the
12 one or more functions if any of one or more handoff criteria are satisfied.
 - 1 23. The method of Claim 22, further comprising the computer-implemented step of:
2 in response to any of the one or more handoff criteria being satisfied, assigning
3 the one or more functions to the fourth participant.
 - 1 24. The method of Claim 22, wherein the step of designating the fourth participant is
2 performed prior to a condition of the third participant that prevents the third
3 participant from performing the one or more functions.
 - 1 25. The method of Claim 22, wherein the step of designating the fourth participant is
2 performed prior to a failure of the third participant.

- 1 26. The method of Claim 22, wherein the first participant is the third participant.
- 1 27. The method of Claim 22, wherein the one or more participants includes the fourth
- 2 participant.
- 1 28. A first communications device comprising:
2 an interface that is configured to receive data from a plurality of communications
3 devices and to transmit data to the plurality of communications devices;
4 and
5 a mechanism that is communicatively coupled to the interface and configured to:
6 perform one or more functions;
7 prior to a failure of the communications device, designate a second
8 communications device from the plurality of communications
9 devices to perform the one or more functions if any of a set of
10 criteria are satisfied;
11 select, based upon performance of a plurality of communications channels,
12 a first communications channel from the plurality of
13 communications channels;
14 generate first channel identification data that identifies the first
15 communications channel;
16 provide the first channel identification data to one or more
17 communications devices from the plurality of communications
18 devices; and
19 receive at least a first communication from the one or more
20 communications devices over a second communications channel
21 from the plurality of communications channels, wherein the second

22 communications channel is determined based on the first channel
23 identification data that identifies the first communications channel.

1 29. The first communications device as recited in Claim 28, wherein the first
2 communications device, the second communications device, and the one or more
3 communications devices are wireless communications devices and the plurality of
4 communications device includes a plurality of wireless communications devices.

1 30. The first communications device as recited in Claim 28, wherein:
2 the first communications device is a master participant; and
3 the second communications device is an associate master participant; and
4 the one or more communications devices are slave participants.

1 31. The first communications device of Claim 28, wherein the one or more
2 communications devices include the second communications device.

1 32. The first communications device of Claim 28, wherein the mechanism is further
2 configured to:

3 select, based upon the performance of the plurality of communications channels
4 and at least one performance criterion, a third communications channel
5 from the plurality of communications channels;
6 generate second channel identification data that identifies the third
7 communications channel;

8 provide the second channel identification data to one or more additional
9 communications devices from the plurality of communications devices;

10 and

11 receive at least a second communication from the one or more additional
12 communications devices over a fourth communications channel from the
13 plurality of communications channels, wherein the fourth communications

14 channel is determined based on the second channel identification data that
15 identifies the third communications channel.

1 33. The first communications device of Claim 28, wherein the mechanism is further
2 configured to:
3 provide the channel identification data to the one or more communications
4 devices over a specified communications channel of the plurality of
5 communications channels, wherein the specified communications channel
6 is not the first communications channel.

1 34. The first communications device of Claim 33, wherein at least the first
2 communication from the one or more communications devices includes
3 performance data that indicates the performance of the specified communications
4 channel.

1 35. The first communications device of Claim 28, wherein the mechanism is further
2 configured to:
3 determine the performance of a plurality of communications channels used by the
4 plurality of communications devices.

1 36. The first communications device of Claim 35, wherein the performance of the
2 plurality of communications channels is determined based on a channel
3 performance testing technique selected from the group consisting of a received
4 signal strength indicator, a header error check, a cyclic redundancy check, and
5 forward error correction.

1 37. The first communications device of Claim 28, wherein the mechanism is further
2 configured to:
3 classify one or more communications channels of the plurality of communications
4 channels based upon whether the performance of the one or more
5 communications channels satisfies at least one performance criterion; and
6 select the first communications channel from the one or more communications
7 channels that are classified as satisfying the at least one performance
8 criterion.

1 38. A computer-readable medium carrying one or more sequences of instructions for
2 managing a communications arrangement comprising a plurality of participants,
3 wherein execution of the one or more sequences of instructions by one or more
4 processors causes the one or more processors to perform the steps of:
5 assigning, to a first participant from the plurality of participants, one or more
6 functions to be performed by the first participant;
7 designating a second participant from the plurality of participants to perform the
8 one or more functions if any of one or more handoff criteria are satisfied;
9 in response to any of the one or more handoff criteria being satisfied, assigning
10 the one or more functions to the second participant; and
11 selecting, based upon performance of a plurality of communications channels and
12 at least one performance criterion, a first communications channel from
13 the plurality of communications channels.

- 1 39. The computer-readable medium of Claim 38, further comprising instructions
2 which, when executed by the one or more processors, cause the one or more
3 processors to carry out the steps of:
4 generating channel identification data that identifies the first communications
5 channel; and
6 providing the channel identification data to one or more participants from the
7 plurality of participants.
- 1 40. The computer-readable medium of Claim 39, further comprising instructions
2 which, when executed by the one or more processors, cause the one or more
3 processors to carry out the steps of:
4 receiving at least a first communication from the one or more participants over a
5 second communications channel from the plurality of communications
6 channels, wherein the second communications channel is determined
7 based on the channel identification data.
- 1 41. A computer-readable medium carrying one or more sequences of instructions for
2 managing, based on performance, a communications arrangement comprising a
3 plurality of participants, wherein execution of the one or more sequences of
4 instructions by one or more processors causes the one or more processors to
5 perform the steps of:
6 selecting, based upon performance of a plurality of communications channels, a
7 first communications channel from the plurality of communications
8 channels;
9 generating channel identification data that identifies the first communications
10 channel;

11 providing the channel identification data to a one or more participants from the
12 plurality of participants;
13 receiving at least a first communication from the one or more participant over a
14 second communications channel from the plurality of communications
15 channels, wherein the second communications channel is determined
16 based on the channel identification data;
17 assigning, to a first participant from the plurality of participants, one or more
18 functions to be performed by the first participant;
19 prior to a failure of the first participant, designating a second participant from the
20 plurality of participants to perform the one or more functions if any of one
21 or more handoff criteria are satisfied.

1 42. A computer-readable medium carrying one or more sequences of instructions for
2 assigning functions between participants and selecting communications channels
3 in a communications arrangement comprising a plurality of participants, wherein
4 execution of the one or more sequences of instructions by one or more processors
5 causes the one or more processors to perform the steps of:
6 assigning, to a first participant from the plurality of participants, one or more
7 functions to be performed by the first participant;
8 prior to a failure of the first participant, designating a second participant from the
9 plurality of participants to perform the one or more functions if any of one
10 or more criteria are satisfied;
11 in response to any of the one or more criteria being satisfied, assigning the one or
12 more functions to the second participant;
13 selecting, based upon performance of a plurality of communications channels and
14 at least one specified criterion, a first communications channel from the
15 plurality of communications channels;

16 generating channel identification data that identifies the first communications
17 channel;
18 providing the channel identification data to a third participant from the plurality of
19 participants; and
20 receiving a first communication from the third participant over a second
21 communications channel from the plurality of communications channels,
22 wherein the second communications channel is determined based on the
23 channel identification data.

1 43. A computer-readable medium carrying one or more sequences of instructions for
2 managing a communications system comprising a plurality of participants,
3 wherein execution of the one or more sequences of instructions by one or more
4 processors causes the one or more processors to perform the steps of:
5 determining the performance of a first communications channel between a first
6 participant from the plurality of participants and one or more other
7 participants from the plurality of participants; and
8 selecting, based upon the performance of the first communications channel
9 between the first participant and the one or more other participants, a
10 second participant from the one or more other participants;
11 assigning, to a third participant from the plurality of participants, one or more
12 functions to be performed by the third participant; and
13 designating a fourth participant from the plurality of participants to perform the
14 one or more functions if any of one or more handoff criteria are satisfied.